



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/715,694	11/17/2000	Ching-Chang Shen	TI-31777	8554

7590

09/10/2003

Dennis Moore
Texas Instruments Incorporated
Post Office Box 655474 M S 3999
Dallas, TX 75265

EXAMINER

RODRIGUEZ, ISABEL

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/715,694

Applicant(s)

SHEN, CHING-CHANG

Examiner

Isabel Rodriguez

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

1. The finality of the action on 4/15/03 has been withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szepesi (US 5,018,041).

a) Regarding to claims 1, 3-5, 11 and 13, Szepesi discloses an overcurrent protection circuit for a motor drive (Fig. 5) comprising: a first FET (213) and a parallel second FET (202), having a gate input coupled to said first FET input gate and conducting a selectively programmable variable bias current (I'_{CL} see col. 6 lines 58-60) and a comparator (218), whose non-inverting input is coupled to the drain of said first FET and whose inverting input is coupled to the drain of said second FET, that generates an output indicative of motor current exceeding a predetermined threshold. Szepesi does not disclose a comparator, whose non-inverting input is directly coupled to the drain of said first FET and whose inverting input is directly coupled to the drain of said second FET. It would have been obvious to one of ordinary skill in the art at the time the invention was made to eliminate the diodes and the low pass filters in order for the comparator to be directly coupled because it utilizes less components and still generates an

Art Unit: 2836

output indicative of motor current exceeding a predetermined threshold. Furthermore, it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. In re Karlson, 136 USPQ 184.

b) Regarding claim 2, it is inherent that the overcurrent protection circuit wherein each FET gates are driven had by a voltage to generate a low on resistance between the respective source and drain.

c) Regarding claim 6, Szepesi discloses that the FET drive voltage is generated by a voltage pump(209).

d) Regarding claim 9, it is inherent that a tracking current source is selectively programmable.

e) Regarding claim 7, Szepesi discloses an overcurrent protection circuit with a voltage pump (level-shift) but gives no details on the amount by which the voltage is shifted. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the input gain to any desired value as long as it compatible with the requirements of other elements in the circuit in order to properly perform the driving function of the driving signal. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

f) Regarding claim 8, Szepesi discloses an over current protection circuit but does not specify that the ratio of said motor current to said bias current is proportional to a size of said first FET with respect to a size of said second FET. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the first and second FET

Art Unit: 2836

size to any desired value as long as it compatible with the requirements of other elements in the circuit in order to properly performs the switching function of the circuit breaker switch. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

g) Regarding claim 10, Szepesi discloses selectively programmable variable bias current and does not specify if controller is analog or digital. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a digital controller, thus making the threshold digitally programmable, because of the advantage of doing of performing faster calculations and many other benefits that are well known in the art. Regarding the digital controller, in absence of persuasive evidence that a particular type of control is significant, it would have been an obvious matter of choice to one of ordinary skill in the art to utilize any type of controller in order to control as long as it provide a the intended function of providing a control signal. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

h) Regarding claim 12, Szepesi discloses that the comparator has delay circuitry filtering out any transient current spikes through said first FET. See col. 8 lines 3-5.

Response to Arguments

4. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection. Regarding applicant's arguments that the diodes and low pass filter alter the signal, the examiner agrees. But as seen above, the examiner understands that the signal provided at the output of the filters is indicative of motor current exceeding a predetermined threshold and does not alter the function of the invention.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isabel Rodriguez whose telephone number is 703-305-4761. The examiner can normally be reached on M-F 8:30-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 703-308-3119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7704 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Application/Control Number: 09/715,694
Art Unit: 2836

Page 6

IR
August 8, 2003



BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800